FluWatch

Public Health Agency of Canada | Agence de la santé publique du Canada

February 10 to February 16, 2013 (Week 07)

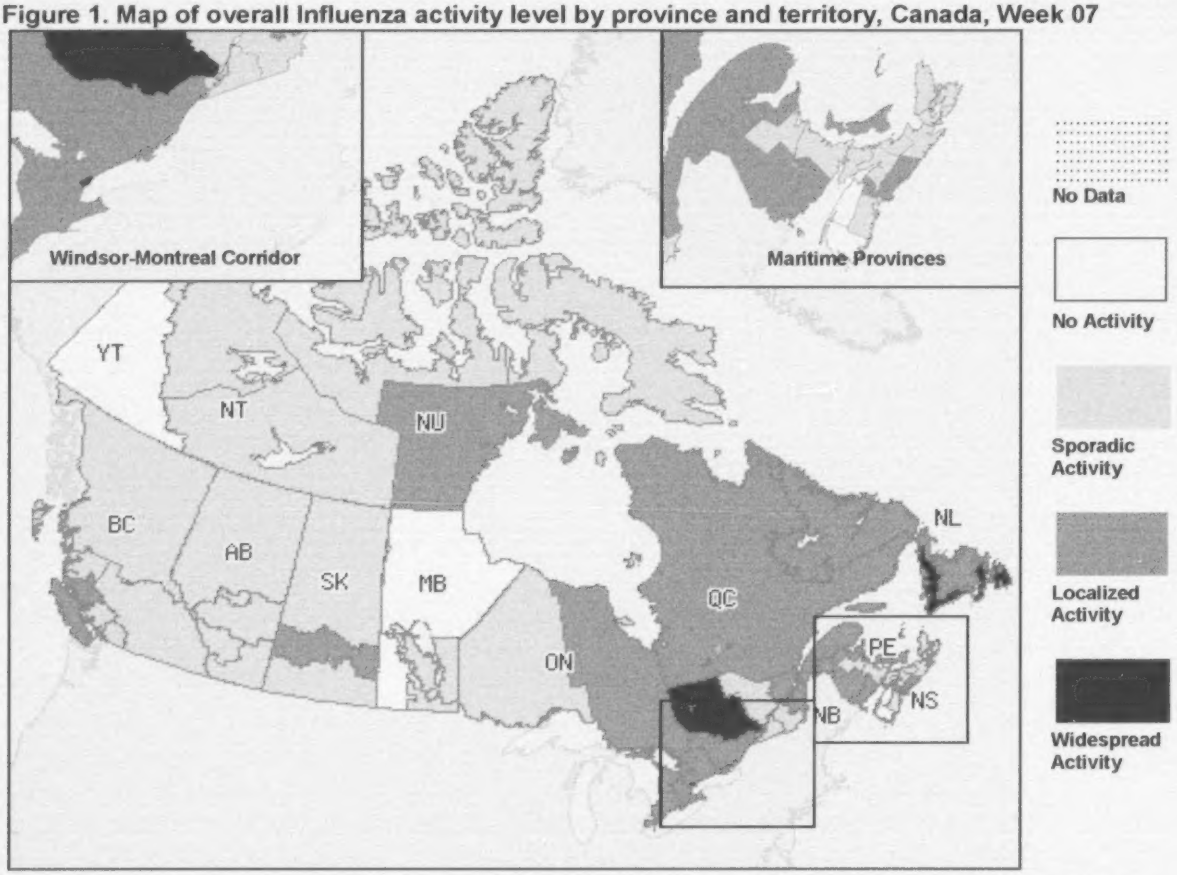
Overall Influenza Summary

- In week 07, several indicators of influenza circulation continued to decrease, including: the percentage of laboratory detections positive for influenza, the number of regions reporting widespread and localized activity, the number of new influenza/ILI outbreaks, and influenza-associated hospitalizations reported by the IMPACT network and by participating provinces and territories.
- The percentage of tests positive for RSV was stable at 19.6% and the percentage of tests positive for rhinovirus increased slightly.
- The ILI consultation rate increased slightly but is within the expected range for this time of year.

Influenza Activity (geographic spread) and Outbreaks

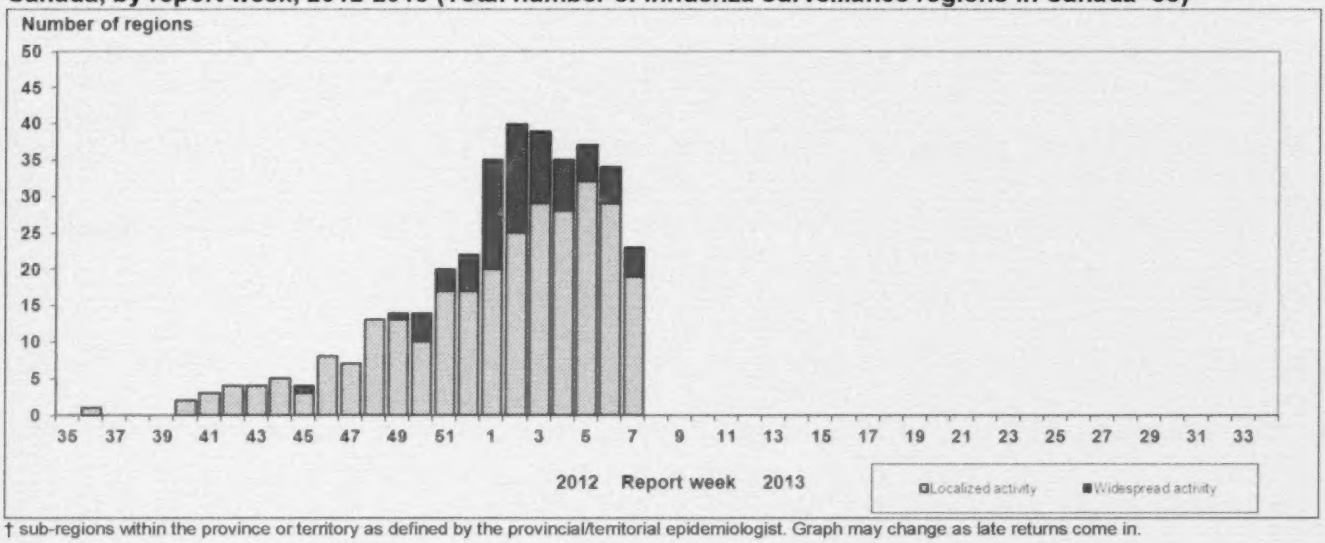
In week 07, 4 regions [in ON(1), QC(1) and NL(2)] reported widespread activity and 19 regions [in BC(1), SK(1), ON(5), QC(2), NB(5), NS(1), PE(1), NL(2) and NU(1)] reported localized activity (Figures 1 and 2). In week 07, 45 new influenza outbreaks were reported: 23 in long-term-care facilities, 3 in hospitals, 5 in schools, and 14 in other facilities or communities (Figure 3).

Figure 1. Map of overall Influenza activity level by province and territory, Canada, Week 07



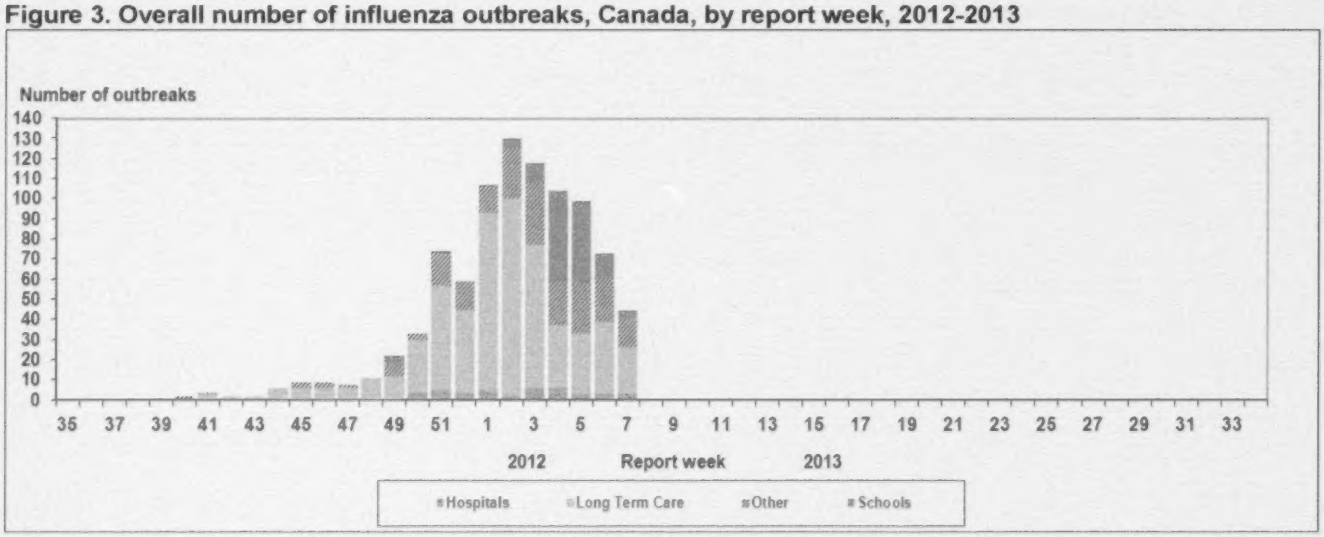
Note: Influenza activity levels, as represented on this map, are assigned and reported by Provincial and Territorial Ministries of Health, based on laboratory confirmations, sentinel ILI rates (see graphs and tables) and reported outbreaks. Please refer to detailed definitions on the last page. For areas where no data is reported, late reports from these provinces and territories will appear on the FluWatch website.

Figure 2. Number of influenza surveillance regions† reporting widespread or localized influenza activity, Canada, by report week, 2012-2013 (Total number of influenza surveillance regions in Canada=58)



† sub-regions within the province or territory as defined by the provincial/territorial epidemiologist. Graph may change as late returns come in.

Figure 3. Overall number of influenza outbreaks, Canada, by report week, 2012-2013



Influenza and Other Respiratory Virus Detections

The percentage of positive influenza tests decreased from 17.0% in week 06 to 15.2% in week 07 (Figure 4). Among the influenza viruses detected in week 07 (n=926), 86.8% were positive for influenza A viruses [of which 28.6% were A(H3), 8.0% were A(H1N1)pdm09, and 63.4% were A(unsubtyped)] (Table 1). The proportion of influenza B detections has increased over the past 4 weeks from 2.1% in week 03 to 13.2% in week 07 (Figure 4). Cumulative influenza virus detections by type/subtype to date are as follows: 96.4% influenza A [35.2% A(H3), 3.1% A(H1N1)pdm09 and 61.7% A(unsubtyped)] and 3.6% influenza B (Table 1).

Detailed information on age and type/subtype has been received for 19,508 cases to date this season (Table 2). The proportion of cases by age group is as follows: 13.2% < 5 years; 7.9% between 5-19 years; 15.3% between 20-44 years; 16.7% between 45-64 years of age; 46.9% ≥ 65 years.

The percentage of tests positive for RSV in week 07 (19.6%) was similar to week 06. The percentage of tests positive for rhinovirus increased from 5.7% in week 06 to 7.6% in week 07. The percentages of tests positive for coronavirus and parainfluenza were similar to the previous week at 4.8% and 2.3%, respectively. Other percentages of positive tests increased slightly in week 07: hMPV at 2.9%; adenovirus at 1.5% (Figure 5). For more details, see the weekly Respiratory Virus Detections in Canada Report.

Table 1. Weekly and Cumulative numbers of positive influenza specimens by Provincial Laboratories, Canada, 2012-2013

Reporting provinces	Weekly (February 10 to February 16, 2013)						Cumulative (August 26, 2012 to February 16, 2013)					
	Influenza A					B	Influenza A					B
	A Total	A(H1)	A(H3)	Pand H1N1	A (UnS)*	Total	A Total	A(H1)	A(H3)	Pand H1N1	A (UnS)*	Total
BC	150	0	90	14	46	21	1899	0	1462	150	287	181
AB	49	0	21	21	7	32	2227	0	1770	317	140	197
SK	20	0	6	9	5	7	747	0	466	26	255	81
MB	25	0	0	2	23	4	562	0	78	6	478	39
ON	199	0	65	14	120	30	7647	0	3599	219	3829	190
QC	135	0	4	1	130	27	9389	0	545	24	8820	214
NB	134	0	0	0	134	1	1308	0	428	15	865	4
NS	46	0	38	3	5	0	232	0	162	4	66	2
PE	6	0	6	0	0	0	84	0	53	3	28	1
NL	40	0	0	0	40	0	633	0	152	0	481	4
Canada	**804**	**0**	**230**	**64**	**510**	**122**	**24728**	**0**	**8715**	**764**	**15249**	**913**

*Unsubtyped: The specimen was typed as influenza A, but no result for subtyping was available. Specimens from NT, YT, and NU are sent to reference laboratories in other provinces. Note: Weekly data is based on week of positive lab detection. Cumulative data includes updates to previous weeks; due to reporting delays, the sum of weekly report totals do not add up to cumulative totals.

Table 2. Weekly & Cumulative numbers of positive influenza specimens by age groups reported through case-based laboratory reporting, Canada, 2012-2013*

Age groups	Weekly (February 10 to February 16, 2013)					Cumulative (August 26, 2012 to February 16, 2013)				
	Influenza A				B	Influenza A				B
	A Total	Pandemic H1N1	A/H3N2	A unsubtyped	Total	A Total	Pandemic H1N1	A/H3N2	A unsubtyped	Total
<5	54	10	8	36	12	2425	141	818	1466	152
5-19	23	2	7	14	25	1356	47	611	698	189
20-44	48	9	6	33	14	2837	200	1132	1505	142
45-64	63	6	7	50	9	3149	195	1133	1821	105
65+	128	3	24	101	10	9016	65	3419	5532	137
Unknown	0	0	0	0	0	159	16	141	2	0
Total	**316**	**30**	**52**	**234**	**70**	**18942**	**664**	**7254**	**11024**	**725**

*Please note that this table reflects the number of specimens for which demographic information was reported. These represent a subset of all positive influenza cases reported. Delays in the reporting of data may cause data to change retrospectively.

Figure 4. Influenza tests reported and percentage of tests positive, Canada, by report week, 2012-2013

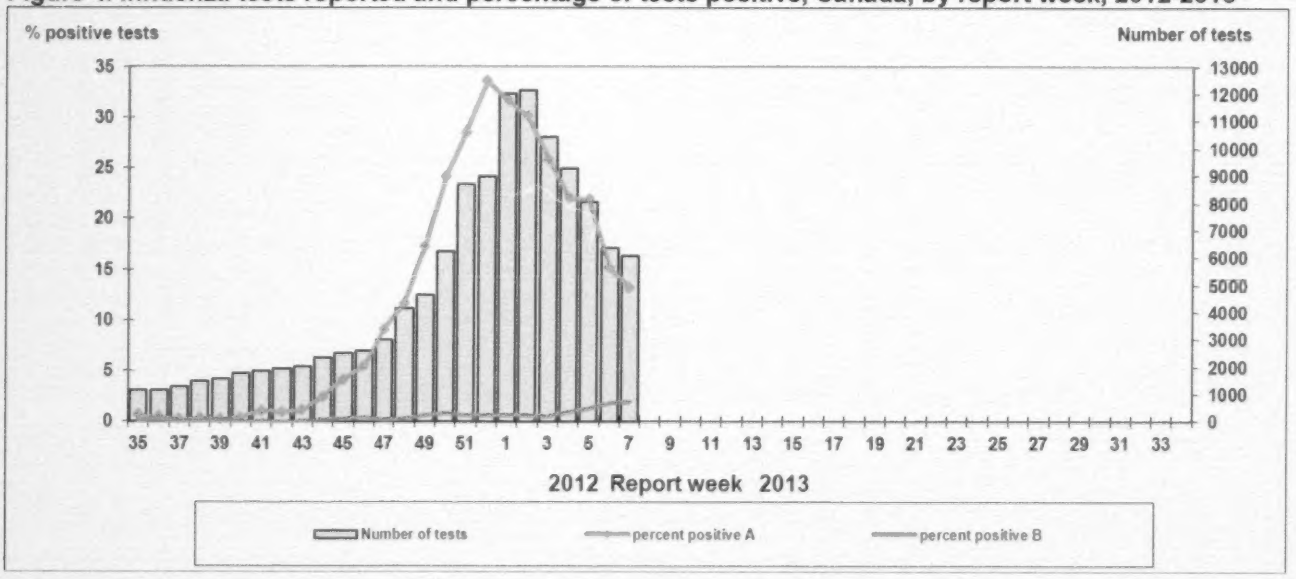
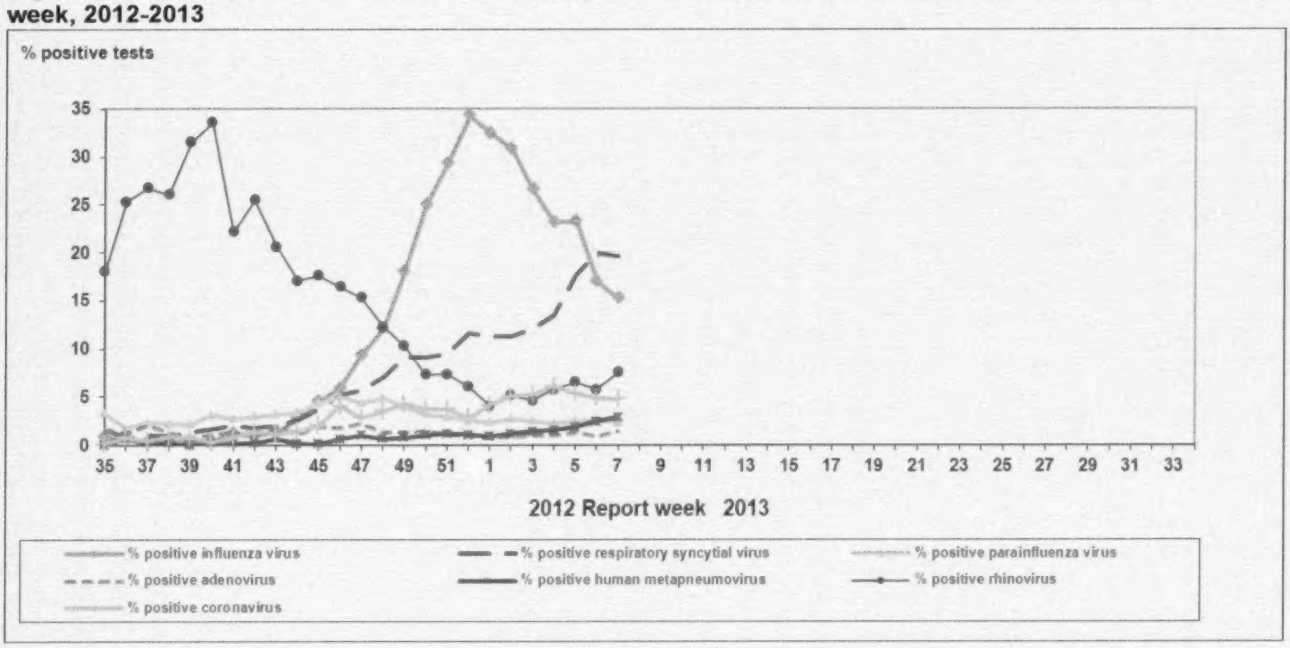


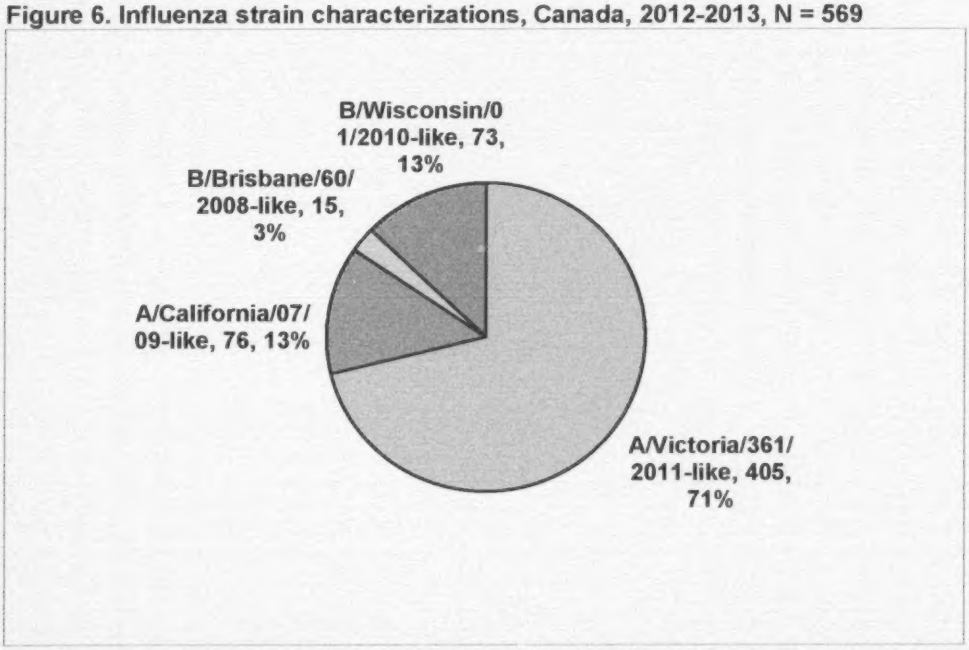
Figure 5. Percent positive influenza tests, compared to other respiratory viruses, Canada, by reporting week, 2012-2013



Influenza Strain Characterizations

During the 2012-13 season, the National Microbiology Laboratory (NML) has antigenically characterized 569 influenza viruses. The 405 influenza A(H3N2) viruses were antigenically similar to the vaccine strain A/Victoria/361/2011 and the 76 A(H1N1)pdm09 viruses were antigenically similar to the vaccine strain A/California/07/09. Among the influenza B viruses, 73 were antigenically similar to the vaccine strain B/Wisconsin/01/2010 (Yamagata lineage) and 15 were similar to B/Brisbane/60/2008 (Victoria lineage; component of the 2011-2012 seasonal influenza vaccine) (Figure 6).

Figure 6. Influenza strain characterizations, Canada, 2012-2013, N = 569



Note: The recommended components for the 2012-2013 Northern Hemisphere influenza vaccine include: an A/Victoria/361/2011 (H3N2)-like virus; an A/California/7/2009 (H1N1)pdm09-like virus; and a B/Wisconsin/1/2010-like virus.

Antiviral Resistance

During the 2012-13 season, NML has tested 517 influenza viruses for resistance to oseltamivir, and 514 influenza viruses for resistance to zanamivir. All viruses tested were sensitive to oseltamivir and zanamivir. A total of 651 influenza A viruses were tested for amantadine resistance and all were resistant (Table 3).

Table 3. Antiviral resistance by influenza virus type and subtype, Canada, 2012-2013

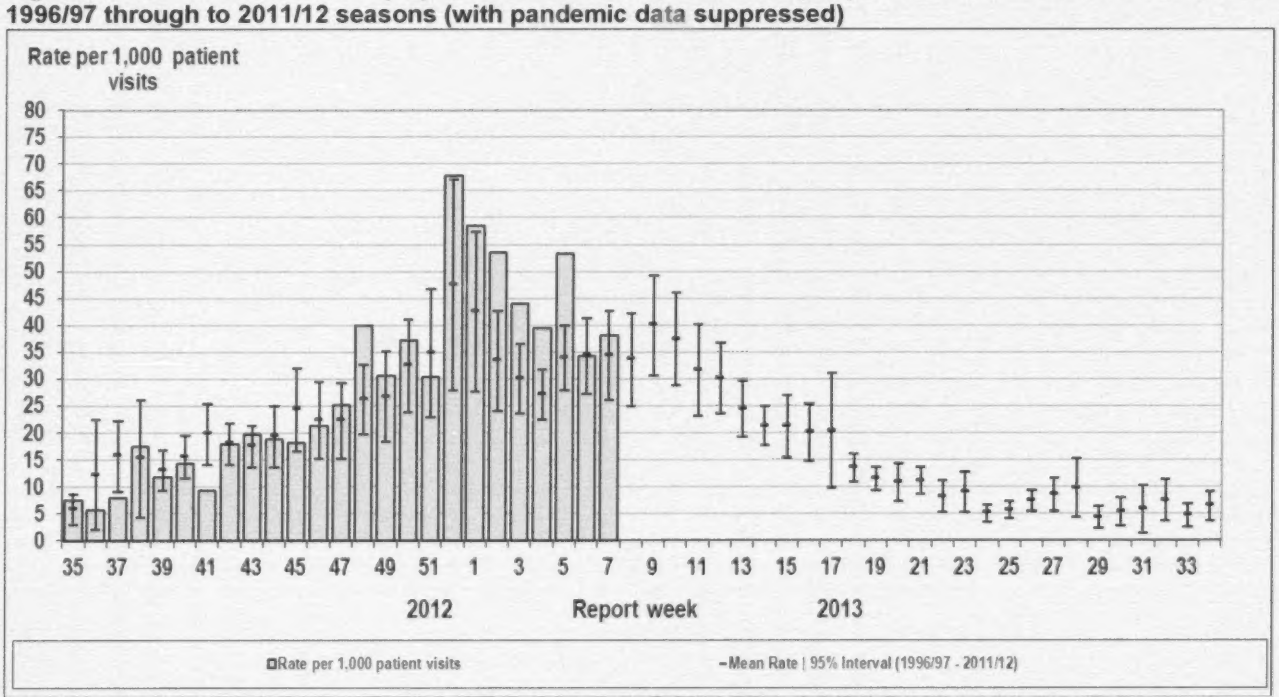
Virus type and subtype	Oseltamivir		Zanamivir		Amantadine	
	# tested	# resistant (%)	# tested	# resistant (%)	# tested	# resistant (%)
A (H3N2)	382	0	381	0	589	589 (100%)
A (H1N1)	58	0	56	0	62	62
B	77	0	77	0	NA*	NA*
TOTAL	517	0	514	0	651	651 (100%)

* NA – not applicable

Influenza-like Illness Consultation Rate

The national influenza-like-illness (ILI) consultation rate increased slightly from 34.2 ILI consultations per 1,000 patient visits in week 06 to 38.0 in week 07, likely due in part to the circulation of other respiratory viruses such as RSV. After 6 weeks with ILI rates above the expected level for this time of year from weeks 52 to 05, the rate has been within the expected range for weeks 06 and 07 (Figure 7). In week 07, the highest consultation rate was observed in children 5-19 years of age (73.9/1,000) followed by children <5 years of age (54.0/1,000).

Figure 7. Influenza-like illness (ILI) consultation rates, Canada, by report week, 2012-2013 compared to 1996/97 through to 2011/12 seasons (with pandemic data suppressed)



Note: No data available for mean rate in previous years for weeks 19 to 39 (1996-1997 through 2002-2003 seasons). Delays in the reporting of data may cause data to change retrospectively.

Pharmacy Surveillance

The Canadian antiviral prescription rate decreased from 151.0 antiviral prescriptions per 100,000 new prescriptions dispensed in week 06 to 123.3 in week 07; which continues to follow the downward trend in the percentage of positive laboratory tests for influenza. In week 07, the antiviral prescription rate decreased for all age-groups. The highest rate continued to be observed for seniors ≥65 years of age, at 379.9/100,000.

Note: Pharmacy sales data are provided to the Public Health Agency of Canada by Rx Canada Inc. and sourced from major retail drug chains representing over 3,000 stores nationwide (excluding Nunavut) in 85% of Health Regions. Data provided include the number of new antiviral prescriptions (for Tamiflu and Relenza) and the total number of new prescriptions dispensed by Province/Territory and age group.

Severe Respiratory Illness Surveillance

Paediatric Influenza Hospitalizations and Deaths (IMPACT)

In week 07, 22 new laboratory-confirmed influenza-associated paediatric (≤16 years of age) hospitalizations were reported by the Immunization Monitoring Program Active (IMPACT) network, compared to 40 in week 06. Among the 15 cases identified with influenza A, 13 (86.7%) were A(unsubtyped), 1 (6.7%) was A(H3N2) and 1 (6.7%) was A(H1N1)pdm09. Seven cases (31.8%) were identified with influenza B. The age distribution is as follows: 4 cases (18.2%) under 6 months of age, 5 (22.7%) between 6-23 months, 6 (27.3%) 2-4 years of age, 5 (22.7%) 5-9 years of age, and 2 (9.1%) 10-16 years of age. No ICU admissions were reported during week 07.

Since the start of the 2012-13 season, a total of 597 influenza-associated paediatric hospitalizations have been reported by the IMPACT network: 554 (92.8%) with influenza A [of which 67 (12.1%) were A(H3N2), 16 (2.9%) were A(H1N1)pdm09 and 471 (85.0 %) were A(unsubtyped)], and 43 (7.2%) with influenza B. The distribution of cases by age group is as follows: 122 (20.4%) <6 months of age; 137 (22.9%) age 6-23 months; 182 (30.5%) age 2-4 years; 104 (17.4%) age 5-9 years; and 52 (8.7%) age 10-16 years. Fifty-one of the 576 cases (8.5%) were admitted to the ICU. No deaths have been reported to date.

Note: The number of hospitalizations reported through IMPACT represents a subset of all influenza-associated paediatric hospitalizations in Canada.

Adult Influenza Hospitalizations and Deaths (PCIRN)

In week 07, 39 new laboratory-confirmed influenza-associated adult (≥16 years of age) hospitalizations were reported by the PHAC/CIHR Influenza Research Network (PCIRN) Serious Outcomes Surveillance (SOS) network, compared to 49 in week 06. The majority of hospitalizations continue to be adults aged ≥65 years25 cases (64.1%). Thirty-eight cases identified with influenza A: 37 with influenza A(unsubtyped), and one with influenza A(H3N2). The influenza type has not been reported for one case. Nine ICU admissions were reported during the current week, all with influenza A(unsubtyped). Six of the nine adults admitted to the ICU were ≥65 years of age, two were 45-64 years of age, and one was 20-44 years of age. Three deaths were reported and all identified with influenza A(unsubtyped):two individuals were ≥65 years of age, and the third was 45-64 years of age.

From November 4, 2012 to February 16, 2013, a total of 1,195 influenza-associated adult hospitalizations were reported by the PCIRN-SOS network: 1,130 (94.6%) with influenza A [of which 143 (12.7%) were A(H3N2), 6 (0.5%) were A(H1N1)pdm09, 981 (86.8%) were A(unsubtyped).]; and 24 (2.0%) with influenza B, and the influenza type has not been reported for 41 (3.4%) cases. Among 1,194 cases with available data, the age distribution is as follows: 816 cases (68.3%) were aged ≥65 years, 246 cases (20.6%) were aged 45-64 years, 128 cases (10.7%) were aged 20-44 years, and 4 cases (0.3%) were <20 years of age. Of the 1,195 cases, 111 (9.3%) were admitted to the ICU. The age distribution of those admitted to the ICU is as follows: 65 (58.6%) were in adults ≥65 years of age, 32 (28.8%) were in adults 45-64 years of age, and 14 (12.6%) were in adults 20-44 years of age. Of the adults admitted to the ICU, 33 (29.7%) had at least one co-morbidity, two (1.8%) had no co-morbidities, and 76 (68.5%) had no information to date. A total of 53 deaths have been reported, 7 (13.2%) with influenza A(H3N2), 44 (83.0%) with influenza A(unsubtyped), and 1 (1.9%) with influenza B, and one (1.9%) for which the influenza type has not been reported. Forty-six of the 53 deaths (86.8%) were in adults ≥65 years of age, 6 (11.3%) were adults 45-64 years of age, and 1 (1.9%) was 20-44 years of age. Twenty-three deaths occurred in individuals who had at least one co-morbidity. Detailed clinical information on co-morbidities is not known for the remaining 30 cases.

Note: The number of hospitalizations reported through PCIRN represents a subset of all influenza-associated adult hospitalizations in Canada.

Provincial/Territorial Influenza Hospitalizations and Deaths (Aggregate Surveillance System)

The number of laboratory-confirmed influenza-associated hospitalizations continued to decline in week 07 (126 compared to 251 in week 06*). The majority of cases were influenza A (95.2%), predominately A(H3). Over half of cases were ≥65 years of age (67/126, 53.2%). Of the 49 cases with available data, 10 (20.4%) were admitted to the Intensive Care Unit (ICU). Twelve deaths were reported: 11 were adults ≥65 years of age, and one 20-44 years of age. It is important to note that the cause of death does not have to be attributable to influenza, a positive laboratory

test is sufficient for reporting. Detailed clinical information (e.g. underlying medical conditions) is not known for these cases.

To date this season, 3316 influenza-associated hospitalizations have been reported. Of these, 97.2% have been influenza A, predominately A(H3); and 2.8% have been influenza B. Age information was available for 3260 cases, and the age distribution is as follows: 57.2% ≥65 years; 16.5% 45-64 years; 8.5% 20-44 years; 1.0% 15-19; 3.4% 5-14 years and 13.4% 0-4 years of age. Among the 890 cases with available data, there have been 140 (15.7%) hospitalisations for which admission to ICU was required; the highest proportions were among adults aged 45-64 years of age (37.1%), and ≥65 years of age (35.0%). To date this season, 217 deaths have been reported: 180 (83.0%) were adults ≥65 years of age, 25 (11.5%) were adults 45-64 years; 7 (3.2%) were adults 20-44 years and 5 (2.3%) were children 0-4 years of age. It is important to note that the cause of death does not have to be attributable to influenza, a positive laboratory test is sufficient for reporting. Detailed clinical information (e.g. underlying medical conditions) is not known for these cases.

Note*: The number of new influenza-associated hospitalizations and deaths reported by the Aggregate Surveillance System each week may be overestimated, as it may include retrospective updates to data from Ontario for previous weeks. These data may also include cases reported by the IMPACT and PCIRN networks. Influenza-associated hospitalizations are not reported to PHAC by the following Provinces and Territory: BC, NU, QC, NS, and NB. Only hospitalizations that require intensive medical care are reported by Saskatchewan. ICU admissions are not reported in Ontario.

International Influenza Updates

WHO: The WHO has released the recommended composition of the influenza vaccine for the northern hemisphere for the 2013-14 season. Trivalent vaccines are recommended to contain 1) an A/California/7/2009 (H1N1)pdm09-like virus, 2) an A(H3N2) virus antigenically like the cell-propagated prototype virus A/Victoria/361/2011 (recommended: A/Texas/50/2012), and 3) a B/Massachusetts/2/2012-like virus (Yamagata lineage). Quadrivalent vaccines are recommended to additionally contain a B/Brisbane/60/2008-like virus (Victoria lineage).
World Health Organization influenza vaccine viruses

The most recent WHO surveillance report (15 February 2013) summarizes global influenza surveillance data from week 05 (January 27 to February 2, 2013). In northern Africa there was a declining trend in influenza detections, despite some countries having reported increases. All three types/subtypes of influenza were circulating, with a slight dominance of A(H1N1)pdm09. Similar variations in activity were observed in western and central Asia where activity was increasing overall. More northern countries such as Turkey reported increasing influenza detections with A(H1N1)pdm09 dominance, while other countries such as Egypt and Jordan reported declining detections of A(H3N2) and influenza B, respectively. In China, ILI activity and influenza detections continued to increase with an increasing percentage of A(H1N1)pdm09 over A(H3N2) and influenza B. Mixed detections of A(H3N2) and A(H1N1)pdm09 were reported with increasing influenza activity in the Republic of Korea. Japan reported declining influenza activity after a peak in mid-January with predominantly A(H3N2) circulating. In tropical countries of South East Asia, influenza activity was similar to previous weeks. India reported a predominance of A(H1N1)pdm09 and influenza B, while Sri Lanka saw circulation of all three subtypes. Cambodia, Thailand and Viet Nam showed co-dominance of influenza B and A(H3N2). In Thailand this represents a switch from co-circulation of influenza B and A(H1N1)pdm09 which was observed 12-15 weeks prior. In Central America and the Caribbean, influenza activity continued to decline, with cases of ILI and ARI more commonly due to RSV and rhinovirus.
World Health Organization influenza update

United States: During week 07, influenza activity remained high, but decreased in most areas. Twenty-two states reported widespread influenza activity, Puerto Rico and 21 states reported regional influenza activity, and the District of Columbia and 6 states reported local activity. The national percentage of outpatient visits for ILI was 2.8% which is above the national baseline of 2.2%, but has been declining for the past 4 weeks. As in previous weeks, all 10 regions reported ILI above region-specific baseline levels, however the number of states reporting high ILI activity has declined. The percentage of deaths due to pneumonia and influenza has been above the epidemic threshold since week 01; in week 07 it was 8.6%. The proportion of tests positive for influenza viruses declined to 16.8% in week 07. Of the positive influenza detections, 54.9% were positive for influenza A viruses. Of the 360 influenza A viruses for which subtype information was available, 91.1% were A(H3). Since October 1, 2012, the CDC has antigenically characterized 1,185 influenza viruses. Among influenza A(H3N2) viruses, 740 (99.5%) were A/Victoria/361/2011-like, and 4 (0.5%) showed reduced titers to A/Victoria/361/2011 antiserum. Among influenza A(H1N1)pdm09 viruses, all 86 were A/California/7/2009-like. Among influenza B viruses, 251 (70.7%) were B/Wisconsin/01/2010-like belonging to the Yamagata lineage of viruses; and 104 (29.3%) to the B/Victoria lineage. Two (0.9%) oseltamivir-resistant A(H1N1)pdm09 viruses have been reported to date this season. Among the 9,531 influenza-associated hospitalizations reported to date this season, 85.8% were associated with influenza A of which 97.4% were A(H3N2), and more than 50% were among adults ≥65 years. A total of 78 influenza-associated paediatric deaths have been reported to date this season, 42 with influenza A and 35 with influenza B.
Centers for Disease Control and Prevention seasonal influenza report

Europe: In week 07, ILI and acute respiratory illness consultation rates continue to increase in the eastern part of the region and have started to decrease in western and northern countries. The percentage of specimens from sentinel clinics positive for influenza remained high at 50%; with A(H1N1)pdm09 continuing to be the predominant strain. Since the beginning of the season, 69% of detections from sentinel and non-sentinel sources were influenza A and 31% were influenza B. Subtyped influenza A viruses were categorized as A(H1N1)pdm09 (73%) or A(H3N2) (27%). Among influenza B viruses, 91% belonged to the Yamagata lineage and 9% to the Victoria lineage. Influenza A is predominant in northern, eastern and central regions while influenza B is reported as predominant in southern and western regions, and the UK (Northern Ireland). The number of hospitalizations for severe acute respiratory illness continues to increase, while the proportion of cases positive for influenza has relatively stable since week 05; most cases continue to be reported in children 0-4 years of age.
EuroFlu weekly electronic bulletin

Human Avian and Swine Influenza Updates

Human Avian Influenza
No new WHO report of Influenza at the Human-Animal Interface has been published since 15 February 2013.
WHO Influenza at the human-animal interface

Human Swine Influenza
No new human cases of infection with swine influenza viruses or variants were reported in week 07.
Centers for Disease Control and Prevention seasonal influenza report

FluWatch reports include data and information from the following sources: laboratory reports of positive influenza tests in Canada (National Microbiology Laboratory), sentinel physician reporting of influenza-like illness (ILI), provincial/territorial assessment of influenza activity based on various indicators, including laboratory surveillance, ILI reporting, and outbreaks, influenza-associated paediatric and adult hospitalizations, antiviral sales in Canada, and WHO and other international reports of influenza activity.

Abbreviations: Newfoundland/Labrador (NL), Prince Edward Island (PE), New Brunswick (NB), Nova Scotia (NS), Quebec (QC), Ontario (ON), Manitoba (MB), Saskatchewan (SK), Alberta (AB), British Columbia (BC), Yukon (YT), Northwest Territories (NT), Nunavut (NU).

ILI definition for the 2012-2013 season

ILI in the general population: Acute onset of respiratory illness with fever and cough and with one or more of the following - sore throat, arthralgia, myalgia, or prostration which is likely due to influenza. In children under 5, gastrointestinal symptoms may also be present. In patients under 5 or 65 and older, fever may not be prominent.

Definitions of ILI/influenza outbreaks for the 2012-2013 season

Schools: Greater than 10% absenteeism (or absenteeism that is higher (e.g. >5-10%) than expected level as determined by school or public health authority) which is likely due to ILI. Note: it is recommended that ILI school outbreaks be laboratory confirmed at the beginning of influenza season as it may be the first indication of community transmission in an area.

Hospitals and residential institutions: two or more cases of ILI within a seven-day period, including at least one laboratory confirmed case. Institutional outbreaks should be reported within 24 hours of identification. Residential institutions include but not limited to long-term care facilities (LTCF) and prisons.

Workplace: Greater than 10% absenteeism on any day which is most likely due to ILI.

Other settings: two or more cases of ILI within a seven-day period, including at least one laboratory confirmed case; i.e. closed communities.

Influenza Activity Levels Definition for the 2012-2013 season

Influenza Regional Activity levels are defined as:

1 = No activity: no laboratory-confirmed influenza detections in the reporting week, however, sporadically occurring ILI may be reported

2 = Sporadic: sporadically occurring ILI and lab confirmed influenza detection(s) with **no outbreaks** detected within the influenza surveillance region†

3 = Localized: (1) evidence of increased ILI* and
(2) lab confirmed influenza detection(s) together with
(3) **outbreaks** in schools, hospitals, residential institutions and/or other types of facilities occurring in **less than 50% of the influenza surveillance region†**

4 = Widespread: (1) evidence of increased ILI* and
(2) lab confirmed influenza detection(s) together with
(3) **outbreaks** in schools, hospitals, residential institutions and/or other types of facilities occurring **in greater than or equal to 50% of the influenza surveillance region†**

Note: ILI data may be reported through sentinel physicians, emergency room visits or health line telephone calls.

* More than just sporadic as determined by the provincial/territorial epidemiologist.

† Influenza surveillance regions within the province or territory as defined by the provincial/territorial epidemiologist.

We would like to thank all the Fluwatch surveillance partners who are participating in this year's influenza surveillance program.

This report is available on the Public Health Agency website at the following address: http://www.phac-aspc.gc.ca/fluwatch/index.html. Ce rapport est disponible dans les deux langues officielles.